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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,382	03/05/2002	Derek I. Finch	58937/131	8455

27433 7590 02/08/2005

FOLEY & LARDNER  
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SUITE 2800  
CHICAGO, IL 60610-4764

EXAMINER
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DUONG, THO V

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/092,382

Applicant(s)

FINCH ET AL.

Examiner

Tho v Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-19, 23, 24 and 26-34 is/are pending in the application.
- 4a) Of the above claim(s) 3, 8-11, 14, 18 and 26-31 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32-34 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 15, 17 and 24 is/are rejected.
- 7) ☒ Claim(s) 4-7, 12-13, 19 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Receipt of applicant's amendment filed 11/29/2004 is acknowledged. Claims 1-15, 17-19,23-24 and 26-34 are pending. Claims 3,8-11,14,18 and 26-31 remain withdrawn from further consideration.

#### ***Response to Arguments***

In view of applicant's amendment, the rejections of claims under 103 (a) as obvious over Quisenberry, the rejection of claim 20 under 112<sup>th</sup> and the objection to the drawings have been withdrawn.

Applicant's arguments filed 11/29/2004 have been fully considered but they are not persuasive. Applicant's argument that Chevalier fails to disclose a fluid connection between the flow pipe (28) and the plates (20,22) inside of the edges of the stack of plates, has been very carefully considered but is not deemed to be persuasive since Chevalier clearly discloses (figure 4 and column 3, lines 50-63) that the flow pipe (28) is an inlet for a fluid flowing through the heat exchanger, which has fluid flow chambers formed between plates. For other arguments, please see the rejections as follows:

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that

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the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed subject matter of “a further fluid connector ... via an opening in the other of the connecting grid plates” is not supported in the original disclosure. It appears in figure 1 that there is more than one fluid connectors connected to a connecting grid. However, the detail of the second fluid connector as in claim 17 is not supported by the original disclosure.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,2,15 and 24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chevallier. Chevallier discloses (figures 1,4, figure A as bellow, and column 3, lines 50-63) a heat exchanger comprising a plurality of heat transfer plates (14) stacked together such that a plurality of fluid channels are provided there between the plates (12); at least one connecting grid comprises a pair of plates (20,22) separating the plurality of heat transfer plates into an upper group of heat transfer plate and a lower group of heat transfer plate (14), and at least one fluid connector (28) in fluid communication with a fluid channel via the connecting grid (18,20,22); the connector (28) comprising a tubular body having an outwardly directed flange formed integrally from a wall of the tubular body to sealingly connect the tubular body to a fluid channel (fluid flow chambers between the half plate (12)) between group plates (14) either on upper side or lower side of the connecting grid via an

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opening (opening of the pipe connection 18) in one of the connecting grid plates. There are several openings in the connecting grid plates can be considered to read on the claimed opening. One is the opening of the pipe connection 18 as recited above. Alternatively, the openings that allow a fluid flowing from flow chambers between plates (20,22) to the other flow chambers of plates (14), is also considered to be the claimed opening. Though, Chevallier do not explicitly show the opening in the alternative case, it is inherently that an opening must exist in one of the plate (20,22) for the fluid flowing to the plates (14). For proof of evidences, the similar type of plate heat exchanger to Chevallier is cited hereby to explicitly show the opening in the connecting grids to allow fluid flowing to the other plates (See 5,358,034 or 5,390,732 with openings of 26 or 20 shown respectively). Furthermore, the outwardly directed flange is formed by deforming an end portion of the tubular body (See figure A). Chevalier further discloses (figure 4) that the fluid connector (28) extends within the pipe connection (18) which is formed by part of the pair of plates (20,22). Therefore, it is proper to conclude that the fluid connector extends between the pairs of plate. Chevallier further discloses (figure 1) the connector (28) provides an inlet/outlet connection on one side of the connecting grid externally of the heat exchanger and connected to both plates (20,22) of the connecting grid. As regarding claim 24, Chevallier does not disclose that the nominal diameter to wall thickness ratio of the tubular body is within 20 to 70. Applicant has not disclosed that having this typically range solves any stated problem, or is for any particular purpose or there is any criticality for selecting this range. Moreover, it appears that the fluid connector would perform equally well with the ratio that shown in Figure 4 of Chevallier. Accordingly, the use of this range is deemed to be a design

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consideration which fails to patentably distinguish over the prior art of Chevallier. In re Aller, 105 USPQ 233.

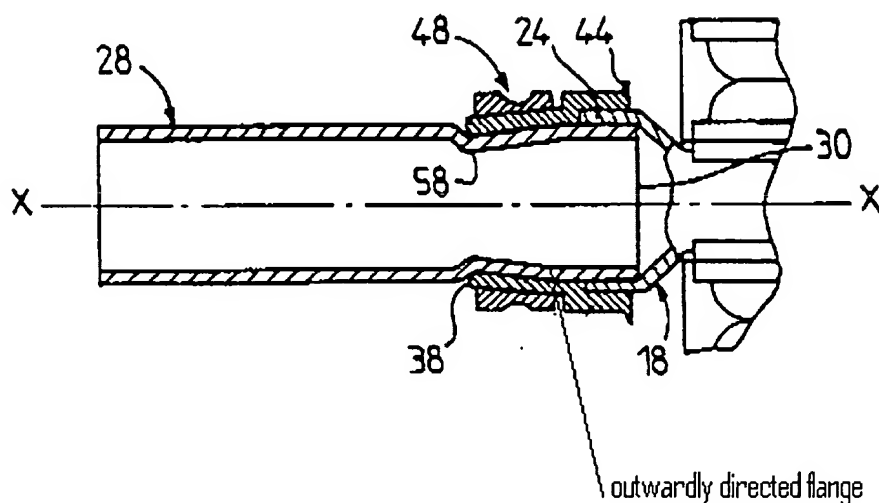


Figure A: The modified figure corresponds to figure 4 with the flange shown.

### *Allowable Subject Matter*

Claims 32-34 are allowed.

Claims 4-7, 12-13, 19 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nishishita et al. (US 5,358,034) discloses a plate heat exchanger with a flow connector.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

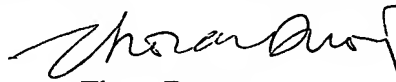
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F (first Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet can be reached on 571-272-4791. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tho v Duong

Examiner

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February 2, 2005